Express Mail Label No. EL598673373US

1.30.00

A

JC957 U.S. PTO 11/28/00

UTILITY PATENT APPLICATION TRANSMITTAL
(Large Entity)

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Docket No.
END920000142US1
Total Pages in this Submission
4

TO THE ASSISTANT COMMISSIONER FOR PATENTS
Box Patent Application
Washington, D.C. 20231

JC639 U.S. PTO 09/724628 11/28/00

Transmitted herewith for filing under 35 U.S.C. 111(a) and 37 C.F.R. 1.53(b) is a new utility patent application for an invention entitled:

APPLICATION SYSTEM CERTIFICATION PROCESS

and invented by:

Nancy M. Psaras
Thomas J. Cleary
George P. Ziegler

If a CONTINUATION APPLICATION, *check appropriate box and supply the requisite information:*

☐ **Continuation** ☐ **Divisional** ☐ **Continuation-in-part (CIP)** of prior application No.: _____

Which is a:

☐ **Continuation** ☐ **Divisional** ☐ **Continuation-in-part (CIP)** of prior application No.: _____

Which is a:

☐ **Continuation** ☐ **Divisional** ☐ **Continuation-in-part (CIP)** of prior application No.: _____

Enclosed are:

Application Elements

1. ☒ Filing fee as calculated and transmitted as described below
2. ☒ Specification having 19 pages and including the following:
 a. ☒ Descriptive Title of the Invention
 b. ☐ Cross References to Related Applications *(if applicable)*
 c. ☐ Statement Regarding Federally-sponsored Research/Development *(if applicable)*
 d. ☐ Reference to Microfiche Appendix *(if applicable)*
 e. ☒ Background of the Invention
 f. ☒ Brief Summary of the Invention
 g. ☒ Brief Description of the Drawings *(if drawings filed)*
 h. ☒ Detailed Description
 i. ☒ Claim(s) as Classified Below
 j. ☒ Abstract of the Disclosure

UTILITY PATENT APPLICATION TRANSMITTAL
(Large Entity)

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Docket No.
END920000142US1

Total Pages in this Submission
4

Application Elements (Continued)

3. ☒ Drawing(s) *(when necessary as prescribed by 35 USC 113)*
 - a. ☐ Formal Number of Sheets _____
 - b. ☒ Informal Number of Sheets 2

4. ☒ Oath or Declaration
 - a. ☒ Newly executed *(original or copy)* ☐ Unexecuted
 - b. ☐ Copy from a prior application (37 CFR 1.63(d)) *(for continuation/divisional application only)*
 - c. ☒ With Power of Attorney ☐ Without Power of Attorney
 - d. ☐ *DELETION OF INVENTOR(S)*
 Signed statement attached deleting inventor(s) named in the prior application, see 37 C.F.R. 1.63(d)(2) and 1.33(b).

5. ☐ Incorporation By Reference *(usable if Box 4b is checked)*
 The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.

6. ☐ Computer Program in Microfiche *(Appendix)*

7. ☐ Nucleotide and/or Amino Acid Sequence Submission *(if applicable, all must be included)*
 - a. ☐ Paper Copy
 - b. ☐ Computer Readable Copy *(identical to computer copy)*
 - c. ☐ Statement Verifying Identical Paper and Computer Readable Copy

Accompanying Application Parts

8. ☒ Assignment Papers *(cover sheet & document(s))*

9. ☐ 37 CFR 3.73(B) Statement *(when there is an assignee)*

10. ☐ English Translation Document *(if applicable)*

11. ☒ Information Disclosure Statement/PTO-1449 ☒ Copies of IDS Citations

12. ☐ Preliminary Amendment

13. ☒ Acknowledgment postcard

14. ☒ Certificate of Mailing
 ☐ First Class ☒ Express Mail *(Specify Label No.):* EL598673373US

UTILITY PATENT APPLICATION TRANSMITTAL (Large Entity) *(Only for new nonprovisional applications under 37 CFR 1.53(b))*	Docket No. END920000142US1
	Total Pages in this Submission 4

Accompanying Application Parts (Continued)

15. ☐ Certified Copy of Priority Document(s) *(if foreign priority is claimed)*

16. ☐ Additional Enclosures *(please identify below):*

Request That Application Not Be Published Pursuant To 35 U.S.C. 122(b)(2)

17. ☐ Pursuant to 35 U.S.C. 122(b)(2), Applicant hereby requests that this patent application not be published pursuant to 35 U.S.C. 122(b)(1). Applicant hereby certifies that the invention disclosed in this application has not and will not be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication of applications 18 months after filing of the application.

Warning

An applicant who makes a request not to publish, but who subsequently files in a foreign country or under a multilateral international agreement specified in 35 U.S.C. 122(b)(2)(B)(i), must notify the Director of such filing not later than 45 days after the date of the filing of such foreign or international application. A failure of the applicant to provide such notice within the prescribed period shall result in the application being regarded as abandoned, unless it is shown to the satisfaction of the Director that the delay in submitting the notice was unintentional.

UTILITY PATENT APPLICATION TRANSMITTAL
(Large Entity)

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Docket No.
END920000142US1

Total Pages in this Submission
4

Fee Calculation and Transmittal

CLAIMS AS FILED

For	#Filed	#Allowed	#Extra		Rate	Fee
Total Claims	14	- 20 =	0	x	$18.00	$0.00
Indep. Claims	3	- 3 =	0	x	$80.00	$0.00
Multiple Dependent Claims (check if applicable) ☐						$0.00
					BASIC FEE	$710.00
OTHER FEE *(specify purpose)* _____						$0.00
					TOTAL FILING FEE	$710.00

☐ A check in the amount of to cover the filing fee is enclosed.

☒ The Commissioner is hereby authorized to charge and credit Deposit Account No. **09-0457** as described below. A duplicate copy of this sheet is enclosed.

- ☒ Charge the amount of **$710.00** as filing fee.
- ☒ Credit any overpayment.
- ☒ Charge any additional filing fees required under 37 C.F.R. 1.16 and 1.17.
- ☐ Charge the issue fee set in 37 C.F.R. 1.18 at the mailing of the Notice of Allowance, pursuant to 37 C.F.R. 1.311(b).

John Pivnichny
Signature

Dated: 11/28/00

John R. Pivnichny, Reg. No: 43,001
IBM, N50/040-4
1701 North Street
Endicott, NY 13760

cc:

CERTIFICATE OF MAILING BY "EXPRESS MAIL" (37 CFR 1.10) Applicant(s): N. M. Psaras et al.			Docket No. END920000142US1
Serial No. N/A	Filing Date Herewith	Examiner N/A	Group Art Unit N/A

Invention: APPLICATION SYSTEM CERTIFICATION PROCESS

JC639 U.S. PTO
09/724628
11/28/00

I hereby certify that the following correspondence:

New patent application, Declaration, Assignment, and IDS w/References

(Identify type of correspondence)

is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 in an envelope addressed to: The Assistant Commissioner for Patents, Washington, D.C. 20231 on

11/28/00
(Date)

Georgia Y. Brundege
(Typed or Printed Name of Person Mailing Correspondence)

Georgia Y. Brundege
(Signature of Person Mailing Correspondence)

EL598673373US
("Express Mail" Mailing Label Number)

Note: Each paper must have its own certificate of mailing.

APPLICATION

FOR

UNITED STATES LETTERS PATENT

APPLICANT(S) NAME: N. M. Psaras et al.

TITLE: APPLICATION SYSTEM CERTIFICATION PROCESS

DOCKET NO. END920000142US1

INTERNATIONAL BUSINESS MACHINES CORPORATION

Certificate of Mailing Under 37 CFR 1.10

I hereby certify that, on the date shown below, this correspondence is being deposited with the United States Postal Service in an envelope addressed to the Assistant Commissioner for Patents, Washington, D.C., 20231 as "Express Mail Post Office to Addressee".

"Express Mail" Label Number EL598673373US

On November 28, 2000

Georgia Y. Brundege

Typed or Printed Name of Person Mailing Correspondence

Georgia Y. Brundege

Signature of Person Mailing Correspondence

11/28/00

Date

APPLICATION SYSTEM CERTIFICATION PROCESS

TECHNICAL FIELD

The invention relates generally to a process for certifying a software application and more particularly to a process for certifying a software application prior to its deployment.

BACKGROUND OF THE INVENTION

When a new software application is to be deployed in an organization it is essential that the application conform to the business environment of the organization. This is particularly critical when the software application supports one or more business processes of the organization and therefore must include various checks and steps needed to provide results for proper business controls as well as operate reliably with high quality.

Techniques and processes as described below have been developed for addressing this problem, primarily directed to the software quality and reliability requirement. However, no satisfactory solution has heretofore been found which addresses the business control and software quality concerns. Post installation audits in particular by their very nature are applied after an application is operational and therefore are not effective during a pre-installation certification.

Belfer et al. in US Patent 5,045,994 describe a method of testing application software using an emulation environment. A user can call sequences of input-output screen pairs used to submit and receive information to/from the application. The screens are prepared offline. An input screen has actual input information for the application. A corresponding output screen has the expected results. The expected results are compared to the actual results received after running the application using the input information in the input screen.

Gil describes in US Patent 5,500,941 a method of performing software validation testing on large electronic systems to determine the quality of the software within the large system. A plurality of stimuli are defined to cause the software to transition from one state to another. The responses to the stimuli are identified and the probabilities of occurrence of the state transitions are calculated. A usage model is built from a plurality of usage cases, where each usage case is identified as comprising a set of state transitions. The probability of occurrence of each usage case is also calculated. A usage profile is built listing the usage cases in order of descending probability. An automated test program is compiled from the usage profile, the stimuli, and the responses. The test program is then executed on the software system to analyze and report the software quality.

H. Sassenburg in a paper entitled "How to sustain (S) PI? assessing readiness for (software) process improvement," presented at the SPI 95 European Conference on Software Process Improvement, Barcelona Spain, Dec. 1995 states in the abstract that the Capability Maturity Model has led to software process improvement programs. However, most such programs are quietly terminated. A checklist for determining where weak points exist in the program can be used to increase the probability of the program succeeding.

European patent EP989713 describes a use for certified software. EP997807 describes a method of certifying transmission of software. Japanese patent JP11025053A determines the certification of a person through use of an IC card. PCT patent WO9834365 describes a method of distributing certified software. PCT patent WO 200010283 describes a method of controlling access to video and audio content by determining whether the BIOS and operating system is certified for access.

All of the above described patents are incorporated herein by reference.

Despite these developments a satisfactory process for certifying software applications to be deployed in a business is still needed.

Therefore, in accordance with the teachings of the present invention there is provided an improved process for certifying software applications prior to their deployment in a business. It is believed that such a process would constitute a significant advancement in the art.

OBJECTS AND SUMMARY OF THE INVENTION

It is therefor a principal object of the present invention to enhance the software certification art by providing a process with enhanced capabilities.

It is another object to provide such a process wherein enhanced operational capabilities are provided.

These and other objects are attained in accordance with one embodiment of the invention wherein there is provided a process for certifying a software application prior to deployment, comprising the steps of, entering a review request for a software application into a staging database, assigning a reviewer and scheduling a time for the review, performing a readiness assessment prior to the time for the review, conducting the review by the reviewer including providing an overview and process flows identifying control points, providing deliverables, and providing a test plan, reporting results of the review, and determining whether the results justify a decision of certification of the software application.

In accordance with another embodiment of the invention there is provided a process for certifying a software application, comprising the steps of, entering a review request for a software application into a staging database, assigning a reviewer and scheduling a time for the review, performing a readiness assessment prior to the time for the review, conducting the review by the reviewer including providing an overview and process flows identifying control points, providing deliverables, and providing a test plan, reporting results of the review, determining whether the results justify a decision of certification of the software application, and if so, deploying the software application, and executing at least a part of the test plan.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a flowchart of a process for certifying a software application in accordance with the present invention; and

FIG. 2 is a flowchart showing additional steps for certifying a software application in accordance with another embodiment of the invention.

BEST MODE FOR CARRYING OUT THE INVENTION

For a better understanding of the present invention, together with other and further objects, advantages, and capabilities thereof, reference is made to the following disclosure and the appended claims in connection with the above-described drawings.

In FIG. 1 there is shown a flowchart 10 of a process for certifying a software application in accordance with the present invention. The software application may be any type of software application including for example a spreadsheet application. Certification may be particularly important if the spreadsheet application performs functions which are financially sensitive including a direct feed into a second certified software application. In such an arrangement the first software application is referred to as a trusted source for the second application.

The software application may also be a common application where a function is developed for use at multiple locations. All locations adhere to a central process, however, each installation may implement different controls, procedures, local interfaces, and operate in a different local environment. Certification of common applications must therefore also focus on these differences including any base code modification or differing use of program exits.

The software application may also be purchased from a vendor. Regardless of how acquired, such applications must comply with the certification standards of internally developed applications. In some cases the certification may be performed prior to the decision to purchase the application, for example through certification using a copy of the application obtained on a trial basis.

Some software applications, whether purchased or internally developed, are widely used throughout a company including deployment in multiple geographies. Such applications are referred to as enterprise wide systems. Certification of the initial installation may form a base from which further certification can be performed on further geography deployments as they occur, with focus on the geographical differences.

In step 12 a review request for a software application is entered into a staging database. The staging database may be any type of database including but not limited to a relational database, sequential database, or spreadsheet database. The request may provide application detail and complexity factors. It may also provide date, duration, contact and review location details.

In step 14 a reviewer is assigned to the review and a time is scheduled for the reviews. The reviewer and person entering the request may be automatically, by e-mail or other means, or manually notified of the scheduled time and location for the review. Steps 12 and 14 may be performed using an automated function to enter the review request into the staging database, assign the reviewer, schedule the time, and notify the reviewer and person entering the request. The automated function also assists in tracking review status, date changes, and assignments.

Prior to the review a readiness assessment is performed in step 16. The readiness assessment may also be automated. A checklist of questions may be used as a way to perform such an assessment. For example the list of questions shown below in Table 1 may be used. A sensitive program is taken to mean any program that creates a hardcopy negotiable document such as a check.

TABLE 1- Readiness Assessment

1. Has a business process owner been identified?

2. Has all applicable testing been completed? (e.g. regression, system, function, user acceptance, cycle, unit)

3. Have all service level agreements and documents of understanding been identified and approved?

4. Have data flow diagrams/charts been completed and control points identified?

5. Have separation of duties assessments been completed and associated documentation created? (e.g. matrix, job responsibilities, application system access)

6. Has the application system been assessed for identification of sensitive programs?

7. Have all control procedures been identified and documented? (e.g. system management control, desk procedures, disaster recovery, table maintenance, fallback)

8. Is there compliance with all applicable corporate instructions and standards?

9. Is the service provider in compliance with all applicable corporate instructions, standards, and guidelines.

10. Has an education plan been developed and implemented?

11. Have all data migration and/or data conversion plans been defined and documented?

12. Have all risks been documented and accepted?

13. Have all downstream applications been approved?

14. Have all upstream software applications used as a trusted source been certified?

The person entering the review request in step 12 would normally be asked to complete a checklist by answering the questions and thereby perform the readiness assessment in step 16. Other types of readiness assessment known in the art may also be performed without departing from the scope of the invention.

In step 18 a review is conducted by the reviewer assigned in step 14 or his designee(s). The review may take many forms such as a written document, presentation, or description, but includes providing an overview of the software application and process flows identifying control points. The overview comprises an application environmental overview which is taken to mean a high level business process overview that describes the function performed within a business unit. The application environmental overview also describes how the software application fits within the business environment. The overview also comprises an architectural overview including a description of the functional requirements, data requirements, control and auditability requirements, platform security, and system requirements. The architectural overview also identifies the upstream and downstream interfaces and key dependencies within the software application. The architectural overview also describes how the application works, what are the data input/output dependencies, what are the application's interrelationships, and what are the platform security requirements.

Process flows may be provided as flowcharts identifying the position of automated or manual control points within the software application. Each control point includes text describing how the control point works and actions to be taken for both normal and exception control outcome. The flowcharts demonstrate that the software application is controlled, data integrity and accuracy is maintained, and fraud can be prevented or detected. The text accompanying a control point may describe reconciliation and balancing controls; system interface/bridge administration and error recovery; process, system, or application error recovery; authorization/verification controls; and master table maintenance controls.

The review may also include a separation of duties evaluation to determine conflicting (non-permitted) tasks. A task can be application access, system activities/transactions, or job responsibilities. A matrix can be used to evaluate and demonstrate the non-permitted tasks. The matrix lists tasks for each row e.g. down the left side, and the same tasks for each column e.g. across the top. An X or other symbol in a matrix cell indicates that the two tasks identified by the row and column containing the cell with the X are a conflict and must be performed by different people. The reviewer verifies that all the pairs of tasks having an X will indeed be separated when the application is deployed.

The review may also include an evaluation of control points that prevent unauthorized change or access to the software application. Changes can include changes to programs, tables, configuration, authorization, or profiles.

The review may also include evaluation of an asset protection plan identifying control points that ensure all data has been properly identified, classified, and protected.

A test plan is provided as part of the review. The test plan describes the criteria (breadth and depth) for successful test completion in all test phases such as regression, function and system test. The test plan defines the minimum criteria that must be met before acceptance of the software application. It also describes test scenarios and expected results for all control points. The test plan may include tests to be performed after deployment of the software application.

Test execution results are one of the deliverables provided in the review. Actual testing results (both negative and positive) are compared to the expected results. The test execution results also include a statement identifying who performed the test and when it was performed.

Deliverables of step 18 comprise all of the items produced during the review as described above.

A demonstration may optionally be provided. The demonstration is a live simulation of the application showing the end-to-end processing steps. The demonstration may include live on-line testing. A sample test involving incorrect input data or a illogical function request may be run during the demonstration to verify proper handling of such data or requests.

The results of the review are reported in step 20. Results include but are not limited to test execution results, process flowcharts and any statements expressed by the reviewer regarding the evaluations described above. Various on-line or automated tools may be used to report the results and to permit on-line review of the results.

In step 22, it is determined whether the results justify certification of the software application. The reviewer would normally make this determination based on the results, however other methods of determination such as group consensus or management signoff may be used.

In FIG. 2 there is shown an additional flowchart 30 describing additional steps performed in another embodiment of the present invention. After step 22 of FIG. 1, the software application is deployed in step 32. Deployment is taken to mean installation, activation, and use in a production manner. In step 34, the post deployment portion of the test plan of step 18 is executed. A post audit of the execution test results is performed.

A quality assurance survey may be sent automatically or manually to the person who entered the request in step 12. The survey may be an automated function. Survey results are then used to improve the quality of the certification process of the present invention.

While there have been shown and described what are at present considered the preferred embodiments of the invention, it will be obvious to those skilled in the art that various changes and modifications may be made therein without departing from the scope of the invention as defined by the appended claims. For example, the steps of flowchart 10 may be fully or partly embodied in a computer program product.

What is claimed is:

1. A process for certifying a software application prior to deployment, comprising the steps of:

entering a review request for a software application into a staging database;

assigning a reviewer and scheduling a time for said review;

performing a readiness assessment prior to said time for said review;

conducting said review by said reviewer including providing an overview and process flows identifying control points, providing deliverables, and providing a test plan;

reporting results of said review; and

determining whether said results justify a decision of certification of said software application.

2. The process of claim 1, wherein said review request is entered into a spreadsheet database.

3. The process of claim 1, wherein said readiness assessment is performed by answering questions in a checklist.

4. The process of claim 1, wherein said overview comprises an application environmental overview and an architectural overview.

5. The process of claim 1, wherein said process flows comprise flowcharts.

6. The process of claim 5, wherein said flowcharts identify the position of automated or manual control points within the software application.

7. The process of claim 5, wherein said control points include text describing actions to be taken for normal and exception control outcome.

8. The process of claim 1, wherein said review includes a separation of duties evaluation.

9. The process of claim 1, wherein said review includes an evaluation of control points that prevent unauthorized change to said software application.

10. The process of claim 1, wherein said test plan describes test scenarios and expected results for all said control points.

11. The process of claim 1, wherein said review further comprises providing a demonstration.

12. A process for certifying a software application, comprising the steps of:

entering a review request for a software application into a staging database;

assigning a reviewer and scheduling a time for said review;

performing a readiness assessment prior to said time for said review;

conducting said review by said reviewer including providing an overview and process flows identifying control points, providing deliverables, and providing a test plan;

reporting results of said review;

determining whether said results justify a decision of certification of said software application, and if so;

deploying said software application; and

executing at least a part of said test plan.

13. The process of claim 12, wherein said review further comprises providing a demonstration.

14. A computer program product for instructing a processor to certify a software application, said computer program product comprising:

a computer readable medium;

first program instruction means for entering a review request for a software application into a staging database;

second program instruction means for assigning a reviewer and scheduling a time for said review;

third program instruction means for performing a readiness assessment prior to said time for said review;

fourth program instruction means for assisting said reviewer in conducting said including assisting in providing an overview and process flows identifying control points, assisting in providing deliverables, and assisting in providing a test plan;

fifth program instruction means for reporting results of said review; and

sixth program instruction means for determining whether said results justify a decision of certification of said software application; and wherein

all said program instruction means are recorded on said medium.

ABSTRACT

APPLICATION SYSTEM CERTIFICATION PROCESS

A software application is certified prior to deployment. A reviewer is assigned and a review time scheduled. A readiness assessment is performed prior to the review time. The reviewer then conducts a review including an overview, process flows identifying control points, deliverables, a demonstration, and a test plan. Results of the review are reported and a determination made of whether to certify the application.

The software application may also be certified including performing additional testing after deployment.

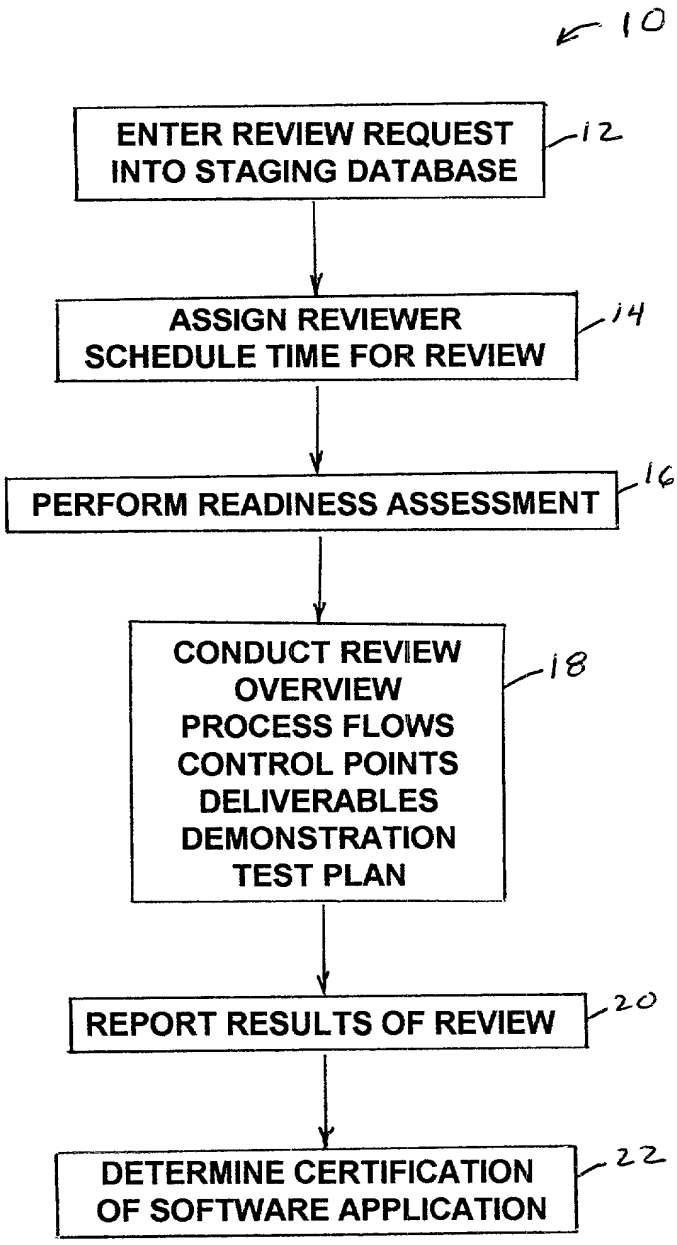

10
ENTER REVIEW REQUEST INTO STAGING DATABASE
12
ASSIGN REVIEWER SCHEDULE TIME FOR REVIEW
14
PERFORM READINESS ASSESSMENT
16
CONDUCT REVIEW OVERVIEW PROCESS FLOWS CONTROL POINTS DELIVERABLES DEMONSTRATION TEST PLAN
18
REPORT RESULTS OF REVIEW
20
DETERMINE CERTIFICATION OF SOFTWARE APPLICATION
22

FIG. 1

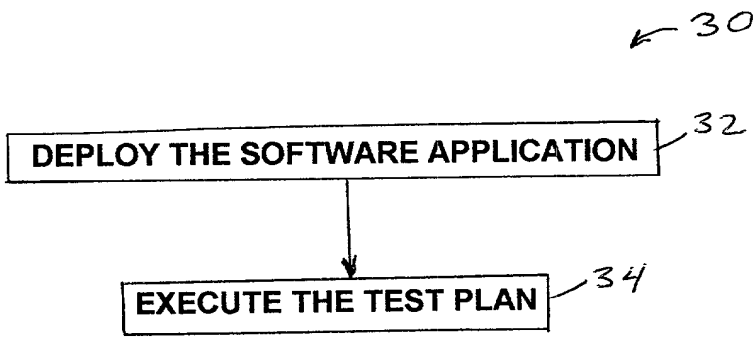

30
DEPLOY THE SOFTWARE APPLICATION
32
EXECUTE THE TEST PLAN
34

FIG. 2

Docket No.
END920000142US1

Declaration and Power of Attorney For Patent Application

English Language Declaration

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

APPLICATION SYSTEM CERTIFICATION PROCESS

the specification of which

(check one)

☒ is attached hereto.

☐ was filed on _____ as United States Application No. or PCT International Application Number _____

and was amended on _____
(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119(a)-(d) or Section 365(b) of any foreign application(s) for patent or inventor's certificate, or Section 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate or PCT International application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s)			Priority Not Claimed
NONE			☐
(Number)	(Country)	(Day/Month/Year Filed)	
			☐
(Number)	(Country)	(Day/Month/Year Filed)	
			☐
(Number)	(Country)	(Day/Month/Year Filed)	

I hereby claim the benefit under 35 U.S.C. Section 119(e) of any United States provisional application(s) listed below:

NONE	
(Application Serial No.)	(Filing Date)
(Application Serial No.)	(Filing Date)
(Application Serial No.)	(Filing Date)

I hereby claim the benefit under 35 U. S. C. Section 120 of any United States application(s), or Section 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. Section 112, I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, C. F. R., Section 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application:

NONE		
(Application Serial No.)	(Filing Date)	(Status) (patented, pending, abandoned)
(Application Serial No.)	(Filing Date)	(Status) (patented, pending, abandoned)
(Application Serial No.)	(Filing Date)	(Status) (patented, pending, abandoned)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. *(list name and registration number)*

David L. Adour, Reg. No: 29,604
Lawrence R. Fraley, Reg. No: 26,885
John R. Pivnichny, Reg. No: 43,001
Arthur J. Samodovitz, Reg. No: 31,297
William H. Steinberg, Reg. No: 28,540
John E. Hoel, Reg. No: 26,279
ChristopherA. Hughes, Reg. No: 26,914
Edward A. Pennington, Reg. No: 32,588
Joseph C. Redmond, Jr., Reg. No: 18,753

Send Correspondence to: **John R. Pivnichny**
IBM., N50/040-4
1701 North Street
Endicott, NY 13760

Direct Telephone Calls to: *(name and telephone number)*
John R. Pivnichny (607) 755-6565

Full name of sole or first inventor
Nancy M. Psaras

Sole or first inventor's signature — Date
Nancy M Psaras 11/6/2000

Residence
20 Appalachian West, Hopewell Junction, NY 12533

Citizenship
USA

Post Office Address
Same as Above

Full name of second inventor, if any
Thomas J. Cleary

Second inventor's signature — Date
Thomas J Cleary 11/20/00

Residence
26 Brandywine Crossing, Roxbury, CT 06783

Citizenship
USA

Post Office Address
Same as above

Full name of third inventor, if any **George P. Ziegler**	
Third inventor's signature George P. Ziegler	Date 11/15/2000
Residence **10 Grammar School Drive, Danbury, CT 06811**	
Citizenship USA	
Post Office Address SAME AS ABOVE	

Full name of fourth inventor, if any	
Fourth inventor's signature	Date
Residence	
Citizenship	
Post Office Address	

Full name of fifth inventor, if any	
Fifth inventor's signature	Date
Residence	
Citizenship	
Post Office Address	

Full name of sixth inventor, if any	
Sixth inventor's signature	Date
Residence	
Citizenship	
Post Office Address	